

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1-5. Canceled.

6. (New) A power supply circuit for supplying alternating power to a load, comprising:

a source of direct current (DC) voltage;

a single ended inverter, the single ended inverter receiving the DC input voltage and generating an alternating current (AC) output signal;

a first harmonic filter at the output of the inverter, the first harmonic filter filtering out predetermined harmonic components of the AC signal to generate a filtered AC signal; and

an output circuit at the output of the first harmonic filter for receiving the filtered AC signal and feeding the filtered AC signal to a load, wherein the output circuit includes a rectifier connected relative to a point in the output circuit such that if the voltage at the point exceeds a predetermined threshold, the rectifier conducts to cause at least one of voltage and current to return to the source of DC voltage and clamps the point to a predetermined voltage.

7. (New) The apparatus of claim 1 wherein the output circuit includes a rectifier connected in parallel with the load.

8. (New) The apparatus of claim 1 wherein the first harmonic filter includes an inductor and a capacitor in series, and the first harmonic filter is arranged in parallel with a switch of the single ended inverter.

9. (New) The apparatus of claim 1 wherein the first harmonic filter includes an inductor and a capacitor, and the inductor is arranged between an output of a switch of the single ended inverter and a terminal of the rectifier.

10. (New) The apparatus of claim 1 wherein the rectifier further comprises a diode, and the first harmonic filter includes an inductor and a capacitor, and the inductor is arranged between an output of the single ended inverter and a cathode of the diode.

11. (New) The apparatus of claim 1 further comprising a plurality of single ended inverters arranged in parallel.

12. (New) The apparatus of claim 1 further comprising a second harmonic filter arranged in parallel with the load, the second harmonic filter further filtering out predetermined harmonic components from the filtered AC signal.

13. (New) A power supply circuit for supplying alternating power to a load, comprising:

a source of direct current (DC) voltage;

a pair of single ended inverters for receiving the DC input voltage and for generating an alternating current (AC) output signal, the single ended inverters being arranged in a push-pull configuration;

a first harmonic filter at the output of each single ended inverter, the first harmonic filter filtering out predetermined harmonic components of the AC signal to generate a filtered AC signal; and

an output circuit at the output of the first harmonic filter for receiving the filtered AC signal and feeding the filtered AC signal to a load, wherein the output circuit includes a rectifier connected relative to a point in the output circuit such that if the voltage at the point exceeds a predetermined threshold, the rectifier conducts to cause at least one of voltage and current to return to the source of DC voltage and clamps the point to a predetermined voltage.

14. (New) The apparatus of claim 8 wherein each single ended inverter comprises:

a switch connected to a first rail of the DC voltage source; and

a resonant circuit connected between the first and a second voltage rail of the DC voltage source, wherein operating the switch energizes the resonant circuit.

15. (New) The apparatus of claim 9 wherein the resonant circuit further comprises:
an inductor connected between the switch and the second rail of the DC voltage source;
and
a capacitor in parallel with the switch.

16. (New) The apparatus of claim 9 further comprising a second harmonic filter at the output of the first harmonic filter, the second harmonic filter removing harmonic components from the filtered AC signal to generate an output signal.

17. (New) The apparatus of claim 11 wherein the second harmonic filter comprises an inductor arranged in parallel with the load.

18. (New) The apparatus of claim 11 further comprising a blocking capacitor at the output of the second harmonic filter for removing DC components from the output of the second harmonic filter.

19. (New) The apparatus of claim 13 wherein the first harmonic filter includes an inductor and a capacitor in series, and the first harmonic filter is arranged in parallel with the switches of the single ended inverters.

20. (New) The apparatus of claim 9 wherein the first harmonic filter includes an inductor and a capacitor, and the inductor is arranged between an output of the switch and a terminal of the rectifier.

21. (New) The apparatus of claim 15 wherein the second harmonic filter includes an inductor, and the inductor is arranged in parallel with the load.

22. (New) The apparatus of claim 9 wherein the single ended inverter further comprises a plurality of single ended inverters arranged in parallel with the load.

23. (New) A plasma control system comprising:

- a plasma chamber excited by a radio frequency (RF) signal;
- a plasma controller for measuring operating conditions of the plasma chamber and generating control signals for varying conditions within the plasma chamber; and
- a RF generator for generating an RF signal to the plasma chamber, the RF generator including:
 - a RF controller, the RF controller receiving the control signal from the plasma controller and generating a power supply control signal, and
 - a power supply for receiving the power supply control signal and generating a RF signal in accordance with the power supply control signal,

wherein the power supply includes a protection circuit including a rectifier connected relative to a predetermined point such that if the voltage at the point exceeds a predetermined threshold, the rectifier conducts to clamp the voltage at the point to a predetermined voltage.

24. (New) The apparatus of claim 18 wherein the power supply further comprises:

- a source of direct current (DC) voltage;
- a single ended inverter, the single ended inverter receiving the DC input voltage and generating an alternating current (AC) output signal; and
- a first harmonic filter at the output of the inverter, the first harmonic filter filtering out predetermined harmonic components of the AC signal to generate a filtered AC signal.

25. (New) The apparatus of claim 19 wherein the output circuit returns at least one of voltage and current to return to the inverter.

26. (New) A power supply circuit for supplying alternating power to a load, comprising:

a source of direct current (DC) voltage;

a single ended inverter for receiving the DC input voltage and for generating an alternating current (AC) output signal for input to a load;

an output circuit at the output of the inverter; and

a dissipation circuit connected to a point in the output circuit such that if the voltage at the point exceeds a predetermined threshold, the dissipation circuit conducts to cause at least one of voltage and current to dissipate and clamps the point to a predetermined voltage.